Alberta Conservation Association
2017/18 Project Summary Report

Project Name: Pike Fishery Angler Survey

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Partnerships

Alberta Environment and Parks
Government of Canada: Service Canada, Canada Summer Jobs

Key Findings

- In summer of 2017, an estimated 17,436 anglers fished for 43,382.8 hours at Gull Lake and captured 29,555 walleye and 13,030 northern pike.
- In summer of 2017, an estimated 1,910 anglers fished for 4,266.0 hours at Snipe Lake and captured 717 walleye and 4,108 northern pike.
- Angling pressure was 5.35 h/ha and 1.01h/ha at Gull and Snipe lakes respectively.
- Overall catch rate at Gull Lake was higher than at Snipe Lake.

Introduction

High fishing pressure, coupled with slow-growing and late maturing populations, have resulted in the over-harvest of many of Alberta's sport fish populations (Sullivan 2003), including northern pike and walleye. Effective management requires an understanding of fishing pressure and harvest on lakes. To facilitate management, in 2017 we performed angler surveys on Gull and Snipe lakes generating data on angler effort, angler catch and harvest, and biological data for sport fish caught.

Methods

We conducted reduced effort angler surveys combined with ratio-of-use (ROU) surveys at Gull and Snipe lakes between May 15 and August 31, 2017 following methods described in Pollock et al. (1994). Surveys were stratified into four temporal units; weekday and weekends/holidays subdivided into morning (8 am to 3 pm) and evening (3 pm to 10 pm) shifts. We interviewed anglers from the boat launch at the end of their fishing trips and recorded hours spent fishing, number of each fish species harvested and released, and collected biological data from harvested fish. Ratio-of-use surveys conducted by boat, followed the same pattern as access surveys but in addition to the regular questions, ROU surveys included the landing point for the vessel. We used bootstrap techniques to calculate estimates and 95 percent confidence intervals (CI) for the number of angler trips, angler hours, number of fish harvested, and number of fish released. We calculated catch rates as total ratio estimators following Malvestuto (1993).

Results

At Gull Lake we interviewed 1,831 anglers who fished for 4,730.8 hours. These anglers harvested 74 walleye and 73 northern pike and released 3,657 walleye and 1,296 northern pike. Estimated angling pressure was 5.35 h/ha (95% CI = 4.54 – 6.22) with 17,437 anglers (95% CI = 14,828 – 20,247) fishing for 43,382.8 hours (95% CI = 36,844.7 – 50,469.7). An estimated 29,555 walleye (95% CI = 24,474 – 35,390) and 13,030 northern pike (95% CI = 10,718 – 15,712) were caught. Walleye and northern pike catch rates were 0.68 fish/h and 0.30 fish/h, respectively. An estimated 580 walleye (95% CI = 411 – 776) and 616 northern pike (95% CI = 413 – 884) were harvested during the survey period.

At Snipe Lake we interviewed 567 anglers who fished for 1,078.8 hours. These anglers harvested 45 walleye and 24 northern pike and released 73 walleye and 751 northern pike. Estimated angling pressure was 1.01 h/ha (95% CI = 0.84 – 1.20) with 1,910 anglers (95% CI = 1,577 – 2,271) fishing for 4266.0 hours (95% CI = 3,521.5 – 5,072.4). An estimated 717 walleye (95% CI = 492 – 990) and 4,108 northern pike (95% CI = 3,088 – 5,396) were caught. Walleye and northern pike catch rates were 0.09 fish/h and 0.51 fish/h, respectively. An estimated 242 walleye (95% CI = 157 – 351) and 174 northern pike (95% CI = 96 – 271) were harvested during the survey period.

Conclusion

Gull Lake experiences remarkably higher fishing pressure than Snipe Lake. Walleye catch rates were significantly higher at Gull Lake while northern pike catch rates were slightly higher at Snipe Lake.

Communications

- ACA data report: Sport Fishery Angler Survey at Gull and Snipe Lakes, Alberta, 2017 (in prep).

Literature Cited

Malvestuto, S.P. 1983. Sampling the Recreational Fishery. Pages 397 – 419. In: L.A. Nielsen and D.L. Johnson, editors. Fisheries Techniques. American Fisheries Society, Bethesda, Maryland, USA. 468 pp.

Pollock, K.H., C.M. Jones, and T.L. Brown. 1994. Angler survey methods and their applications in fisheries management. American Fisheries Society Special Publication 25. 371 pp.

Sullivan, M.G. 2003. Active management of walleye fisheries in Alberta: dilemmas of managing recovering fisheries. North America Journal of Fisheries Management 23: 1343-1358.

Photos

Alberta Conservation Association seasonal staff Dylan Brassard with a walleye caught at Snipe Lake, 2017. Photo: Geoff Sage

Alberta Conservation Association staff Brendan Ganton with a walleye caught at Gull Lake, 2017. Photo: Kacey Barret

Alberta Conservation Association seasonal staff Kacey Barret with a walleye caught at Gull Lake, 2017. Photo: Kwami Aku-Dominguez